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DATAMATION®

AUGUST 1, 1988
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CIO:
Misfit or Misnomer?

A Status Report by DATAMATION and Coopers & Lybrand

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BY PAUL TATE
1987 saw key shifts in IS development and purchasing patterns that will affect European vendors' fortunes in the '90s. Meanwhile, revenues for the top 25 IS firms in Europe were up 26.5%. With financial data on:

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Editorial

Removing a Chief Information Obstacle

If you work in an organization that lacks a chief information officer, by title, don't worry—it doesn't mean you're employed by a Stone Age company run by Neanderthals. In fact, your IS situation is the norm, not the exception. Only two out of 400 user organizations actually have titled CIOs, according to a recent survey conducted by DATAMATION and Coopers & Lybrand that forms the basis for this issue's cover story.

Resistance by ceos and chief operating officers is nearly the biggest barrier to CIOs. According to the survey, the chief complaints of IS execs include a lack of acceptance by ceos, a lack of IS knowledge by top officers, and a lack of understanding of the CIO's role. Barely a quarter (26%) of those execs even report directly to ceos. Far more (35%) answer to cfos—small wonder that IS luminaries such as Michael Simmons, former technology chief at Fidelity Investment, Boston, complain that systems outlays are still treated as expenses instead of capitalized investments.

IS execs are themselves leery of the CIO name. Almost half don't even think the title is necessary, believing in some cases that it needlessly elevates the position within companies and only creates confusion among employees and shareholders. They prefer business cards identifying themselves as vice presidents of technology, for example. In cases where they do see the title as necessary, a majority believe the CIO should be fourth on the corporate totem pole—after the ceo, chief operating officer, and cfo.

More telling than these perceptions, however, are measures of how IS execs—whether CIOs in title or just in function—operate within their environments. Despite all the noise about integrating business and technology plans, very little synergy exists. According to the survey, the IS execs have extremely limited policy-setting roles outside their traditional areas. In marketing, for example, only 15% of them have significant input.

This fault, more than any other, disturbs us. For how can any organization hope to integrate its hardware, software, and communications systems if it can't even coordinate its core operations, including technology management?

If the title CIO has become an obstacle in the path toward true integration, which we suspect it has, let's drop it.

Tim Mead

TIM MEAD
EDITOR-IN-CHIEF

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Letters

Unix Topix

What an interesting editorial David Brousell wrote in the April 15 issue of DATAMATION ("Unix is Old News," p. 3); it put so many things about Unix into perspective that I intend to use it as a checklist whenever an opponent or proponent of Unix seeks to present a one-sided view of the subject.

Your observations that Unix has become a symbol "of liberation from machine dependency" and that it represents "the democratization of computing" convey what is driving the interest of information resource managers in the public and private sectors. This does not mean that all forms of proprietariness are bad, but those that restrict the future choices available to users in the marketplace and limit competition should be identified and avoided in order to accelerate the application of information technology for everyone's benefit.

FRANK J. CARR
Commissioner
General Services Administration
Washington, D.C.

If, as the Unix camp is suggesting, Unix becomes the standard operating system of the future, I fear that this would spell doom for the information technology industry. The IT industry has thrived on innovation, as technology moves extremely fast, with vendors competing on speed, reliability, etc.

To standardize on a cumbersome 15-year-old operating system will constrain most of this traditional innovation. Hopefully, in 15-to-20 years' time, we will not be writing applications programs as we do today, but if the Unix camp has its way, stagnation is very likely.

I cannot get excited about any operating system; I just need the system to run an application and to shield me from the operating system.

Let innovation continue to be the major platform for the future of the IT industry. I can only echo the final sentence of David Brousell's editorial: "When we see more announcements about successful business solutions and less about standards conformance, we'll know we're on the road to fulfilling computing's promise."

ALED HUGHES
Independent Consultant
Bålsta, Sweden

Dino Users

We read with great interest your editorial entitled "Who Speaks for Users?" (May 15, p. 3), especially since specialized user training has been the focus of our firm for seven years.

The passive user is the dinosaur of the information age. Today's users need to know exactly what kind of information they need and how to work with the development group to make that information happen. In our experience, many users need to become more progressive and proactive—and that's exactly what we train them to be.

While many users have micros and mainframes at their fingertips, they seem to have everything but essential elements—the analytical skills to become effective. Users must be able to identify and define their problems—to think in a problem-solving mode, much like systems analysts. They need to become what we call "user analysts."

Who will speak for users? With proper training, we find that users who develop the right practical skills can do pretty well for themselves.

JOHN C. SILVESTRI
J.C. Silvestri Associates Ltd.
Addison, Ill.

Thank You

I want to thank you for your recent articles about disabilities and computers, specifically "For People With Handicaps Computers = Independence" (May 1, p. 39). My husband and I began SpeciaLink, a nonprofit high-tech resource center for persons with disabilities, and the more exposure that can be given to the possibilities that computers bring to this population, the better.

My daughter is mentally retarded and has been our motivator. Liz will probably not use the technology in a working environment, but she will use it to extend her learning experiences, improve her coordination, and, most important, build her self-esteem and self-confidence.

SpeciaLink is part of Apple's National Special Education Alliance. Currently, we are not funded, but are actively seeking funds. The service we, and other centers, are providing is a needed one—the perfect candidate for a United Way Agency. Awareness and understanding of disabilities and the computer is something that is slowly happening. Thank you for helping in this process.

ELAINE HACKETT
Director
SpeciaLink
Cincinnati

THE EUROPEAN 25

Market Close-up

SMASHING THE $50B BARRIER

European IS vendors approach 1992 at breakneck speed as open systems and standards become widespread. The top 25's revenues grew 26.5% in '87.

The year 1987 likely will signify the end of '80s-style computing in Europe. During its frantic 12 months there were a number of key shifts in information systems development and purchasing that set the scene for the New Age of IS, which will dominate the next decade.

Features from 1987 that will become the foundations for European IS include open systems, international standards for networks and operating systems, flexible purchasing options, and an emphasis on competitive edge end-user applications. The year also saw trading barriers within the traditionally fragmented European market breaking down, a stronger presence for European IS vendors, and desperate attempts by IBM to halt its market share losses.

Yet, despite the fundamental changes these trends represent, in financial terms, the European IS business remained strong and steady last year. The

Illustration by Darryl Lgarsen

dollar's nosedive in international currency markets toward the end of the year and the continuing growth in European revenues for the major IS firms helped the DATAMATION European 25 companies—the top IS money-makers in Europe—smash through the $50 billion barrier for the first time.

Total Revenues up 26.5% Over 1986

Total revenues for the DATAMATION European 25 firms amounted to $56.3 billion during 1987—up by a massive 26.5% over 1986. Around 14% of that rise can be accounted for by the weak dollar and the difference in exchange rates between 1986 and 1987, but even when the growth rate is adjusted to take account of the dollar's slide, it still leaves a healthy 12% growth in real revenues among the top companies.

In a market valued at $86 billion by industry research firm International Data Corp., Framingham, Mass., those sales accounted for 65.5% of the total European expenditure on information systems in 1987. The companies that benefited the most from that market growth were pc makers, leasing firms, midrange suppliers, and plug-compatible manufacturers. The two companies that suffered most were Groupe Bull, which had a hard time in its home market in France, and IBM, which had an even harder time in virtually every one of its major markets when its performance is measured in local currencies.

Big Blue has lost massive amounts of market share in the European market over the last few years. It accounted for only 32.5% of the total revenues of the DATAMATION European 25 last year, down from 35.3% in 1986, and a long way from its heady shares of the mid-1980s—42% in 1984, and 39% in 1985.

In 1986, IBM's largest international subsidiary, in West Germany, was off by almost 13% in market share. In 1987, the West German company was down another 3.5%. In two of IBM's other major European markets, France and the U.K., the company's revenues were below the 1986 level. In the Netherlands, IBM suffered another massive drop in business, down 18.2% in 1987 following an 8.1% fall in 1986. The only bright star in IBM's European firmament last year was Italy, up by a healthy 13.5% (see "IBM Europe's Major Markets").

Despite the poor performance in Europe in actual accounting currencies, IBM's business in the Old World is still a major area of growth when measured in dollars. Its European revenues showed a total increase of 16.8% in dollars because of the favorable exchange rates. That, in turn, helped IBM Corp. report an overall increase in worldwide revenues and profits for 1987. In contrast to the 16.8% increase in Europe, IBM reported a 4% drop in the proportion of its revenues coming from the U.S.

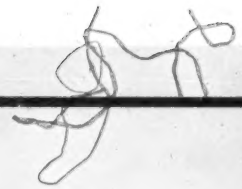
Europe Is Source of Strongest Growth

In fact, markets outside the U.S. are where growth is strongest for most of the companies in the DATAMATION European 25. A look at U.S. IS revenues as a

The DATAMATION European 25

1987 RANK	1986 RANK	COMPANY	HEAD-QUARTERS	1987 EUR IS REV	% CHG $ U.S.	% CHG IN AAC	TOTAL IS REV	% CHG $U.S.
1	1	IBM	U.S.	$18,332.5	16.8	16.8	$50,485.7	5.9
2	2	Siemens AG	W. Germany	4,961.6	28.5	6.4	5,703.0	30.1
3	4	Ing. C. Olivetti & Co. SpA	Italy	3,802.5	29.3*	12.4	4,637.2	19.8
4	3	Digital Equipment Corp.	U.S.	3,533.0	27.2	27.2	10,391.3	23.5
5	7	Nixdorf Computer AG	W. Germany	2,652.2	38.9	15.1	2,821.5	36.1
6	5	Groupe Bull	France	2,345.8	(2.8)	(15.7)	3,007.5	17.1
7	6	Unisys Corp.	U.S.	2,272.9	15.7*	15.7	8,742.0	6.8
8	8	NV Philips Gloeilampenfabrieken	Netherlands	2,055.2	20.1*	(0.7)	2,601.6	32.2
9	9	Hewlett-Packard Co.	U.S.	1,800.0	21.2	21.2	5,000.0	11.1
10	10	STC plc	U.K.	1,720.4	20.9	8.8	2,123.9	21.3
11	11	NCR Corp.	U.S.	1,583.6	29.2	29.2	5,075.7	15.7
12	12	LM Ericsson	Sweden	1,284.9	7.4	(4.4)	1,511.6	12.5
13	—	Alcatel NV	France	1,272.3	NA	NA	2,052.1	20.9
14	—	Inspectorate Intl. Ltd.	Switzerland	1,033.0	NA	NA	1,225.0	NA
15	—	Société Générale	France	970.1	44.2	25.0	970.1	44.2
16	20	Atlantic Computers plc	U.K.	892.7	125.5	276.4	959.7	123.4
17	14	Honeywell Bull	U.S.	885.4	26.6	26.6	2,059.0	8.9
18	—	Memorex Intl.	Netherlands	832.9	NA	NA	1,041.1	NA
19	15	Wang Laboratories Inc.	U.S.	822.3	40.0	40.0	3,045.7	14.1
20	18	Mannesmann AG	W. Germany	617.0	38.7	14.9	686.0	40.4
21	22	Apple Computer Inc.	U.S.	547.4	68.4	68.4	3,041.2	49.7
22	24	Cap Gemini Sogeti	France	545.8	85.7	61.0	682.3	62.4
23	—	Econocom Intl. BV	Netherlands	525.9	51.0	25.0	674.3	54.9
24	—	Amstrad plc	U.K.	501.0	101.0	80.1	533.0	94.5
25	—	Amdahl Corp.	U.S.	493.1	81.9	81.9	1,505.2	55.8

All currency figures are in millions. NA = Not Available *1986 numbers were restated.



percentage of total IS revenues and the consequent percentage change over the previous year (see "The DATAMATION European 25") reveals that less of these firms' revenues are coming from the U.S. For example, the U.S. proportion of Cap Gemini's revenues is down 10%, Olivetti's is down 6%, mostly due to its partner AT&T overstocking Olivetti pcs the year before, Unisys's is down 7% in the U.S., and DEC's is down 5%.

This means that future competition among the major vendors for a slice of the European action will be even more cutthroat, and especially harder for U.S. companies. In the 1987 ranking, nine of the DATAMATION European 25 firms are from the U.S., compared with 11 in 1986 and 12 in 1985. The 16 European companies from eight European countries in the latest survey account for 46% of the top 25's revenues—up from 41% in 1986 and 36.6% in 1985. European companies are clearly increasing their strength in their local markets.

What's more, the combined worldwide revenues of the top 25 European-owned companies (see "The 25 Leading European-Based IS Companies") rose to $33.2 billion last year—an awesome increase of 42% over the previous year.

The rise in the threshold for entry into the top 25 is one of the most significant changes in this year's survey. In 1986, that threshold was $283 million—this time Amdahl holds the 25th position with $493 million. That raging increase results from two things: the low dollar exchange rate, which once again inflates the revenue figures over 1986; and the entry of seven new names to the list, a result of European merger mania and some real revenue growth among these firms last year.

Seven New Firms Among the Top 25

Among the seven new firms are Alcatel and Memorex, which both existed as other entities before. Alcatel is the result of the merging of ITT's European business and the communications and dp interests of the French CGE group. Memorex International, meanwhile, was the result of a buy-out by European management from the merged Burroughs and Sperry company Unisys. But 1987 will go down as its only year as an independent company. In January, it merged with the U.S. Telex organization.

There are three new leasing companies in this year's ranking—an indication of the growing strength of the European leasing community as buyers search for more flexible methods to obtain the equipment they need to stay competitive. The firms—Inspectorate International, based in Switzerland; the French group Europe Computer Systems, which is owned by French bank Société Générale; and Netherlands-based Econocom International—have burst onto the scene riding the crest of this European leasing boom. It is now estimated that almost a third of all large systems acquired by European companies are financed on a leasing basis.

The other two new firms on the table have won their places on the back of IBM technologies. U.K. PC-clone maker Amstrad plc has become Europe's fastest-growing pc company, with IS revenues up by 80% in Europe last year. It dominates the U.K. market for pc shipments and gets the rest of its European revenues mainly from France, Italy, and Spain. Pcm Amdahl Corp., with its European revenues up by 82% in '87, is also a new entry. Since Amdahl offered better price performance than IBM for almost all its product range, last year it was able to convince a lot of European users to switch to the pcm option.

In many ways, the success of Amdahl in Europe during 1987 is one of the reasons for IBM's poor fortunes, and there is no indication that this trend will ease up. IBM is going to have to become much more aggressive in its marketing if it is to manage to hold on to its already depleted mainframe market in Europe.

DEC Continues To Dominate the Midrange

As IBM is suffering, DEC is having a ball in Europe. With revenues up by 27.2% in 1987, it continues to dominate the European midrange market, despite the strong performance of companies lower down the list, such as Nixdorf of West Germany and Hewlett-Packard.

Even so, DEC has dropped from third place to fourth on this year's table because of a slightly higher growth rate from Italy's Olivetti. The Italian company didn't have a great year for sales, but the inclusion of the European revenues of its West German office equipment

% CHG IN AAC	EUR IS REV AS % OF TOT IS REV	% CHG	US IS REV AS % OF TOT IS REV	% CHG	NET INCOME	1987 EMPLS	FISCAL YEAR END
5.9	36	3	46	(4)	5,258.0	389,384	Dec.
7.7	87	(1)	81	(2)	1,709.4	359,000	Sept.
4.2	82	6	9	(6)	310.0	58,087	Dec.
23.5	34	1	51	(5)	1,284.3	116,800	June
12.6	94	2	NA	NA	146.9	29,440	Dec.
1.5	78	(16)	5	0	37.5	26,337	Dec.
6.8	26	2	56	(7)	578.0	92,500	Dec.
9.3	79	(8)	14	0	403.8	336,700	Dec.
11.1	36	3	51	(2)	644.0	82,000	Oct.
8.8	81	0	NA	NA	221.1	33,860	Dec.
15.7	31	3	45	(4)	419.3	62,000	Dec.
.1	85	(4)	5	NA	115.9	70,893	Dec.
2.9	62	NA	31	NA	398.9	137,000	Dec.
NA	84	NA	15	NA	NA	7,698	Dec.
25.0	100	0	0	0	NA	NA	Dec.
100.3	93	1	5	(3)	42.3	1,134	Dec.
8.9	43	6	53	(2)	17.4	20,500	Dec.
NA	80	NA	20	NA	47.0	14,106	Nov.
14.1	27	5	60	(4)	94.5	30,855	June
16.2	90	(1)	8	5	NA	9,457	Dec.
49.7	18	2	72	(2)	280.5	7,927	Sept.
40.9	80	10	20	(10)	44.3	10,600	Dec.
28.1	78	(2)	20	2	NA	1,600	Dec.
74.4	94	3	3	(3)	172.7	1,009	June
35.8	33	5	63	(1)	146.0	7,600	Dec.

Source: DATAMATION

THE EUROPEAN 25

subsidiary Triumph Adler helped it record a 29.3% increase, pushing it up to the coveted number three position behind IBM and Siemens.

Tracking the Ups and Downs

Four other companies rose in the 1987 rankings. West Germany's Nixdorf continued its rapid expansion of business and moved up two more places to number five. U.K. leasing star Atlantic rocketed up another four places to number 16; Apple cashed in on the European pc boom in 1987 to move up one place to number 21; and French computer services company Cap Gemini Sogeti strengthened its position as Europe's leading services firm with a rise of two places to number 22.

Most of the companies on the way down, however, did not deserve their falls from grace. DEC dropped one place despite 27% growth, Honeywell Bull fell three places although its business increased by 27%. Wang slid four places with an even more impressive growth rate of 40%, and Mannesmann dipped two places despite a 15% increase. In almost all these cases, new companies entering the DATAMATION European 25 caused the decline. The one company that deserved its fall was French company Groupe Bull, which lost 15% of its European revenues last year.

France's CGE was one of the companies that disappeared from the list in 1987, due to its merger with ITT to create Alcatel, which is on the list at number 13. Also off the list is BASF, which merged its pcm interests with those of Siemens to create Comparex Information Systems. Comparex is not featured in the DATAMATION European 25, but it comes in at number 18 in the list of the top 25 European-owned companies. Other absent friends in the 1987 ranking were Control Data, Commodore, Rank Xerox, Norway's Norsk Data, and Data General.

One company on the list now, and which certainly won't be there next year, is Ericsson Information Systems. After years of losses the division's parent sold it off to aggressive Finnish company Nokia to create Nokia Data Systems.

The 25 Leading European-Based IS Companies

	COMPANY	COUNTRY	WORLD IS REV ($ MIL)	% CHG	% CHG IN AAC
1	Siemens AG	W. Germany	$5,703.0	30.1	7.7
2	Ing. C. Olivetti & Co. SpA	Italy	4,637.2	19.8	4.3
3	Groupe Bull	France	3,007.5	17.1	1.5
4	Nixdorf Computer AG	W. Germany	2,821.5	36.1	12.6
5	NV Philips Gloeilampenfabrieken	The Netherlands	2,601.6	32.2	9.3
6	STC plc	U.K.	2,123.9	21.3	8.8
7	Alcatel NV	Belgium	2,052.1	20.9	2.9
8	LM Ericsson	Sweden	1,511.6	12.5	0.1
9	Inspectorate Intl. Ltd.	Switzerland	1,225.0	359.1	908.4
10	Memorex Intl.	The Netherlands	1,041.1	NA	NA
11	Société Générale	France	970.1	70.8	48.2
12	Atlantic Computers plc	U.K.	959.9	123.4	100.9
13	Mannesmann AG	W. Germany	686.0	40.4	16.2
14	Cap Gemini Sogeti	France	682.3	62.4	40.9
15	Econocom Intl. BV	Netherlands	674.3	54.9	28.1
16	Rank Xerox	U.K.	615.0	34.0	20.2
17	Racal Electronics plc	U.K.	549.1	16.1	4.1
18	Amstrad plc	U.K.	533.0	94.5	74.4
19	Comparex Info. Systeme GmbH	W. Germany	530.8	NA	NA
20	Finsiel SpA	Italy	424.1	39.5	21.3
21	Norsk Data AS	Norway	422.6	21.1	10.3
22	Ferranti plc	Italy	398.8	18.8	6.5
23	Nokia Corp.	Finland	375.3	37.3	19.0
24	Scicon Intl. Ltd.	U.K.	287.0	14.5	2.6
25	Thorn EMI plc	U.K.	246.1	23.4	10.7

The list of the five fastest-growing companies on the 1987 table indicates how the European market shifted in 1987. The top of the top performers for the second year running was the U.K.'s leasing company Atlantic, which reported a stunning surge in revenues from both increased sales and acquisitions. Second was Amdahl with an 81.9% boost in sales. The U.K.'s pc success story Amstrad came in third with 80% growth, followed by another pc maker, Apple, which increased by 68.4% in Europe last year. Fifth was Cap Gemini Sogeti with a 61% boost in business.

These trends show how the need for users to find cheaper ways of investing in the technologies they required helped leasing firms such as Atlantic and pcm companies such as Amdahl make a killing. The pc surge kept Amstrad and Apple busy last year, while Cap Gemini Sogeti was able to offer the software and services that companies needed to streamline their IS systems and create competitive edge applications.

In fact, Cap Gemini is well placed for even more significant growth in its business in the next few years on the back of other major trends that emerged last year. The information services sector in Europe is already worth $31 billion according to industry research firm Input, which estimates the sector will grow to $71 billion by 1992.

That is certainly possible, since 1992 is the deadline for changes in the trading procedures of the major European countries that, in theory, will create a single European market for goods and services. This is the goal of the Single European Act, passed by the European Parliament in Luxembourg in June last year and which already is having devastating effects on the structure of European business. The preparation for the event really got under way in the first half of this year with mergers such as that to form the new services company created by Systems Designers and Scicon, two of the U.K.'s top firms.

Electronic Links Aid Services Industry

The reason the services industry is going to be so important is that many of the new trading links in the unified market are going to be electronic; the highly competitive market that it is supposed to generate will mean much more emphasis on competitive edge end-user applications. Services companies can provide these for European firms.

This development has not escaped the notice of IBM Europe. Big Blue decid-

IBM Europe's Major Markets

■ IBM's three largest European subsidiaries barely held onto their 1986 revenue levels last year and profits were down in many others. The 18.2% drop in business in the Netherlands has put Spain into fifth place among IBM's major Euromarkets.

	1987 LOCAL SALES ($ MIL)	1987 LOCAL SALES AAC	% CHG AAC	*1987 TOTAL REV AAC	% CHG AAC	NET INCOME ($ MIL)	NET INCOME AAC	% CHG AAC
West Germany	3,870.8	DM6,957	-3.5	DM1,151	-4.0	303.2	DM545	5.1
France	3,068.7	FF18,439	-0.4	FF37,511	2.5	373.3	FF2,243	-9.2
U.K.	2,691.3	£1,646	-0.3	£3,483	12.8	192.7	£315	19.9
Italy	2,636.1	L3,419,000	13.5	L5,391,000	20.2	352.4	L457,000	-15.7
Spain	921.6	P113,831	3.1	P177,457	-1.5	179.8	P22,206	2.4
The Netherlands	833.8	G1,689	-18.2	G3,216.7	-9.2	103.2	G209	-16.4
Sweden	688.0	Skr4,362	2.5	Skr7,640	-2.7	59.3	Skr376	-33.6

* Includes interarea transfers.
All currency figures are in millions.

Source: IBM Europe, Paris.

ed some time ago that this was the business to be in, but only over the last year or so has the company really begun to get involved in the European systems integration and services scene in a big way. So far, it has had some significant success with deals to integrate the systems of two consortiums of European airlines and the trading network for the Lloyds of London insurance market.

The other major factor for the future that IBM has begun to appreciate is that European businesses and governments are at the forefront of the move toward open systems. There have been vendor groups supporting the open systems concept in Europe since the early '80s, but the momentum has become so powerful and the message has traveled so widely that IBM now has no alternative but to go with the flow.

C. Michael Armstrong, the new head of IBM Europe, has a tough job to convince the Europeans that the company is serious about open systems, despite the setup of the Open Software Foundation a few months ago and the regular IBM claims that it has done more for Open Systems Interconnection (OSI) communications standards than anyone else.

Open systems in Europe is not just a future goal—it is fast becoming a reality. The European Commission in Brussels already has directed European governments to include OSI in all purchasing requirements for systems, while the X/Open group that began in Europe four years ago hopes to have a number of X/Open-compliant systems on the market by the end of this year.

These are the reasons that 1987 was the last of its kind in Europe for the IS business. The emphasis on open systems, end-user applications, and new ways to cut the cost of IS investments will take the European IS industry into the 1990s. At the same time, the traditional barriers between countries and industry sectors will be broken down to create a different kind of market by 1992. What the next few years will determine is whether or not European companies can be the winners in that market. Although its continuing dominance of the market seems to suggest otherwise, it is by no means certain that IBM can maintain anything like its current position during the years of change ahead in Europe.

Methodology

For this survey, Europe includes Austria, Belgium, Denmark, Finland, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the U.K., and West Germany.

IS revenues are defined as being derived from sales of the following: computer systems, including mainframes, minicomputers, microcomputers, personal computers, workstations, word processors, office systems, and CAD/CAM systems; peripherals, including terminals, printers, plotters, disk drives, tape drives, magnetic media, and data entry devices; software, including operating systems and applications programs; data communications equipment, including communications processors, LANs, digital PBXs, multiplexors, modems, and facsimile machines; data services, including custom programming, systems integration, consulting, timesharing, and remote processing; maintenance and repair; computer leasing; and point-of-sale systems and automated teller machines.

Explicitly excluded are the following: data transmission or "basic" services from specialized common carriers that are not integrated with a data processing service; standalone electronic or mag card typewriters; standalone electronic cash registers; instrumentation; semiconductors; printed circuit boards; automatic test equipment; IS supplies, with the exception of magnetic media for disk and tape drives; industrial control devices; central office telephone switches; analog PBXs; and computer-output micrographic systems.

Whenever possible, information in the DATAMATION European 25 is obtained from the companies themselves. When a company will not provide it in a form suitable for this survey, we have estimated the figures based on investigative reporting, coupled with an analysis of industry trends.

The net income reported for each company represents total earnings, not just earnings from information systems revenues. Revenues derived from sales to other divisions or units within a company are considered captive sales and are not included in this survey.

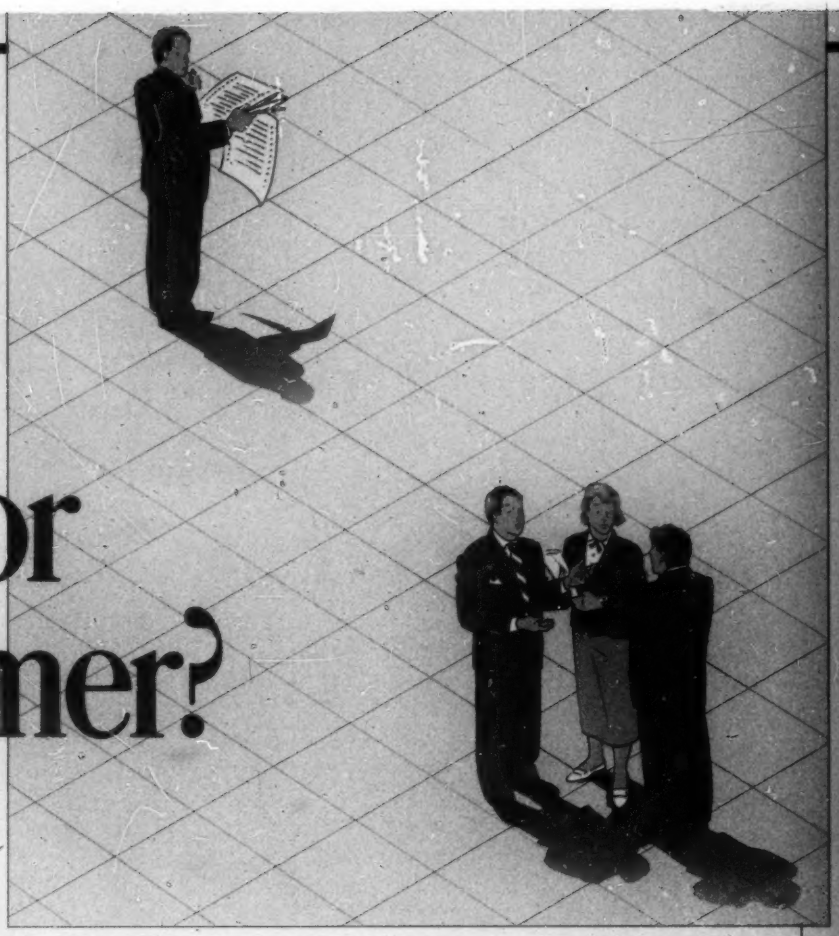
Currency Exchange Rates

Results for non-U.S. companies are converted into dollars using OECD average exchange rates. For those currencies not part of the OECD, exchange rate information was provided by the International Monetary Fund. For 1987, equivalents to $1 in these currencies were as follows: European Currency Unit, ECU.87; Finland Fmk4.40; France, FF6.01; Italy, L1,296.97; the Netherlands, G2.03; Norway, NKr6.74; Sweden, Skr6.34; Switzerland, SFr1.50; the U.K., £.61; West Germany, DM1.80.

For 1986, equivalents to $1 in these currencies were as follows: European Currency Unit, ECU1.02; Finland, Fmk5.07; France, FF6.93; Italy, L1,491.05; the Netherlands, G2.45; Norway, NKr7.39; Sweden, Skr7.12; the U.K., £.68; West Germany, DM2.17. ■

BY PAUL TATE

CIO: Misfit or Misnomer?



In response to corporate America's desire to wield technology more effectively, a new executive position has been named and, in a few cases, assigned to IS managers. Unfortunately, the philosophical foundation for the chief information officer title—unifying and guiding the entire corporation's information technology—bears little resemblance to the realities of the job. A Coopers & Lybrand/DATAMATION survey has shown that, even for those IS executives who hold the title, the CIO job carries little of the authority necessary to develop and nurture long-term IS strategies that might better the businesses they serve.

BY RALPH EMMETT CARLYLE

According to the new IS mythology, a vital ingredient has been added to the churning mass of assets and people that is corporate America—a new breed of manager with unusual gifts; a bridge, it is hoped, between the alien cultures of the executive suite and the computer room.

A torrent of books and magazine articles have painted an idealized portrait of these new "renaissance" men and women, the so-called chief information officers, or CIOs. According to their legend, CIOs are corporate eagles, using the view from their aeries to plot long-term strategies that unite the business and technology sides of the house.

The cult grows daily. The Chicago-based Society for Information Management, one of the nation's more prestigious trade groups, has pushed for the spread of the CIO title; a magazine of that name has appeared; and top research companies, such as San Jose's Dataquest, have CIO advisory services.

Misconceptions Grow with the Myths

Unfortunately, as the mythology has grown, so have the misconceptions, as a startling new survey from Big Eight accounting firm Coopers & Lybrand and DATAMATION shows.

"Confusion over just what constitutes a CIO is rampant," says John Highbarger, the Coopers & Lybrand partner responsible for Information Systems and for the survey of 400 top IS executives across the nation. "Fifty nine percent of respondents thought of themselves as CIOs, yet only 27% reported directly to the top of the company." A direct pipeline to the top, he notes, is a prerequisite for the job. As planner of long-term strategies uniting the business and technology sides of the house, the CIO must be part of the inner circle of top officers to have any influence at all.

Even more confusing is the title. "You'd have to look long and hard through corporate America to find executives that are actually called 'chief information officer'," says Highbarger, who found only two in the survey. He adds that merely 14% of respondents felt the title actually described what they do. Applied Computer Research Inc., Phoenix, publisher of the *Directory of Top Computer Executives*, took a random sampling of 5,000 names for DATAMATION and came up with 36 CIOs.

What little research there has been in the international arena shows that the CIO concept hasn't yet caught fire overseas. "You don't find the title at all," says Gwen Peterson, manager of Dataquest's

Illustration by Min Joe Hong

To unite the business and technology sides of the house, the CIO must be part of the inner circle of top officers.

CIO Advisory service, "but we believe the function is beginning to emerge, especially at European banks."

Small- and medium-sized companies in the U.S. don't yet have CIOs. "If the function exists at all," says Peterson, "it is part of the ceo's job. If not, outside consultants are used."

Academia is similarly bereft of CIOs, according to Prof. James Wetherbe, director of the University of Minnesota's MIS Research Center. "The operational and administrative sides of the campus computing environment have separate IS chiefs," he says. "There's no top IS executive responsible for the whole show."

Where CIOs do exist, it seems, is in large U.S. companies, especially at frontier organizations in the information-intensive services sector: banks, insurance firms, and airlines. Those who function as CIOs usually sit behind such recognizable nameplates as senior vp, vp of information services, or information resources manager. Given the infinite variety of titles for the CIO function, these executives will be referred to collectively as CIOs for the sake of clarity.

The CIO: Stairway to Corporate Heaven?

In the mythology, these men and women are seen as a new order: the information elite. Their advent is seen as part of a natural succession, a reprise of what happened when senior accountants blossomed into chief financial officers (cfos) in the 1960s. Cfos, the argument goes, look after the financial health of the corporation, and since it's money that makes the business world go 'round, many cfos have risen to become ceos. The old maxim that "information is power" has led many to speculate that CIOs in their turn will take the top corporate spot in the 1990s by virtue of their control of information.

The Coopers & Lybrand/DATAMATION survey debunks this notion. Only 7% of respondents believe they will ever secure the top position in their company. They believe the chances for advancement elsewhere are even slimmer. Only 3% expect eventually to become ceo of another company.

"The idea that we're some 'elite' that controls information is totally false and misleading," says John Hammitt, vp, information management for Pillsbury Co., Minneapolis, who functions as the food giant's CIO. "We don't control information, we help make it flow."

Hammitt is one of many top information managers who believe that the CIO moniker (and mythology) is not only misleading, but harmful. "It's pompous and self-serving, and obscures the issues," he says. "It confers [on us] an authority we don't have. We're servants of the corporation," he says of the job. "We empower others to succeed."

Some of the more politically astute CIOs have been able to make a noticeable difference to their organizations by allying themselves with line managers to create innovative new systems. For example, Larry Burden, vp, information services, at Firestone Tire and Rubber Co., Chicago, designed a system that tracks each step for building a tire, from having the right amount of rubber on hand to checking the tread depth. At Fidelity Investments, Boston, Michael Simmons devised a way for the company to become the only U.S. seller of mutual funds to offer hourly pricing.

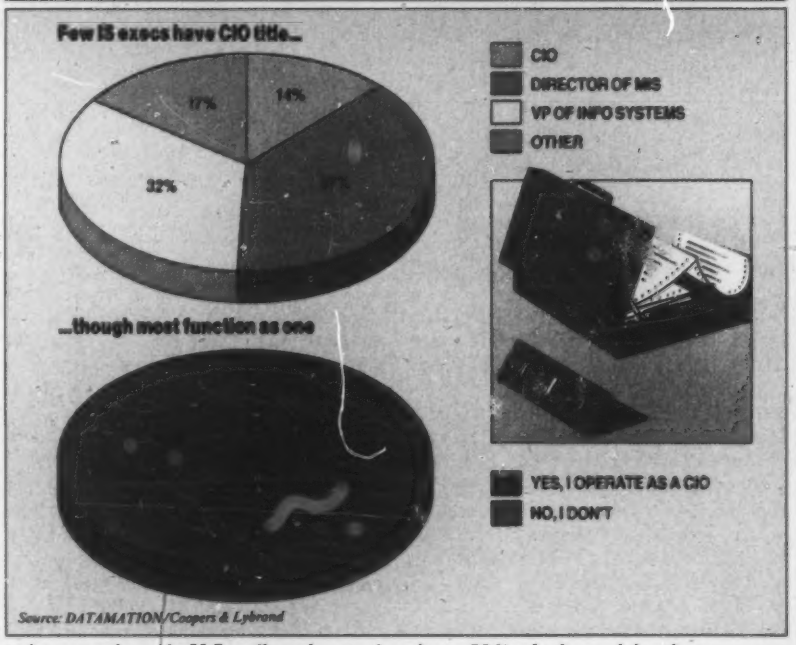
In most corporations, however, as the survey shows, the CIO function has a toothless quality to it. As architect of the information system, the CIO sits on many corporate planning groups, but he or she has no direct control over any of the line organizations. "We don't state, we suggest," says Burden. The pervasive quality to the job, guiding the flow of information throughout the corporation, has made other managers nervous.

The University of Minnesota's Wetherbe says he knows of several cases in which the title created such animosity that its bearers gave it up happily. "It turned them into targets."

Wetherbe's view mirrors much of corporate reality for these executives, whatever their title. Rather than rallying around the CIO, most business managers seem to be doing their best to make the CIO's life a misery. The CIO movement is only as old as the decade, yet already the first wave of managers functioning in the role have drifted into a nomadic existence: victims of power politics and unrealistic expectations, as the C&L/DATAMATION survey shows.

"Few remain in their companies for more than four years," says Coopers & Lybrand's Highbarger, expressing surprise at the survey's findings. "Fifty-six percent of respondents—top IS executives, 59% of whom claim they are currently functioning as CIO—have been at their companies three years, and can be expected to move on soon."

Title



Source: DATAMATION/Coopers & Lybrand

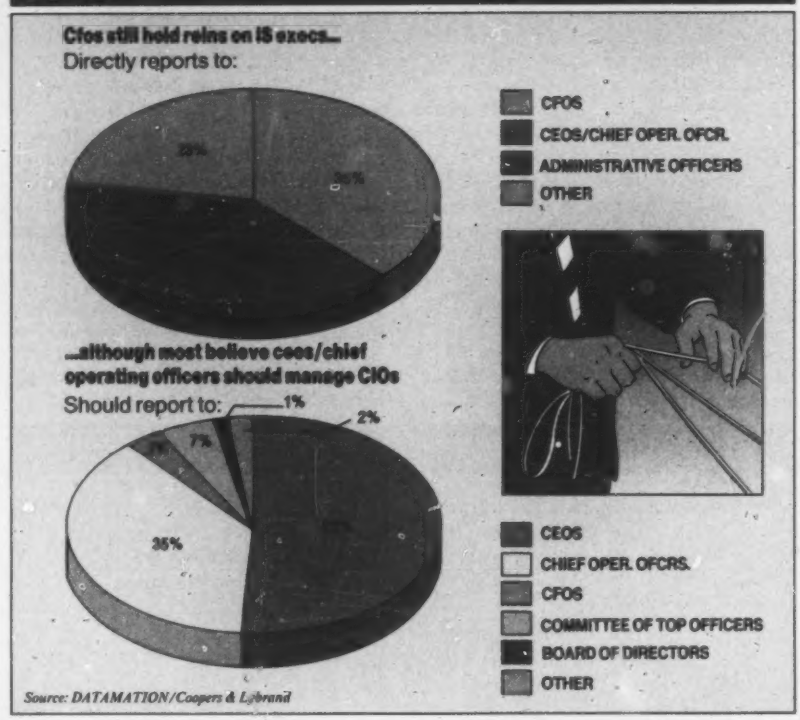
CIOs Are Usually Corporate Outsiders

The data show that the majority of these men and women joined their employers as CIO and will leave in that capacity. They usually don't come up through the ranks of the company; they are outsiders when they arrive, and outsiders when they leave.

And though they survive the attacks of jealous peers who exist within all organizations, it seems there's one thing they

Chart by Paragraphics/Illustration by Min Joe Hong

Power



cannot survive: the ruthless logic of the quarterly balance sheet.

Most often, the CIO has been hired by the ceo to correct past technology mismanagement, the symptoms of which can be found everywhere in American industry. By 1983, the typical American company was spending $5,000 per employee on information technology, according to one survey by management consultant firm Nolan and Norton, Lexington, Mass., representing a four- to fivefold increase over 1979 levels. A Harvard Business School survey conducted a year later estimated that 50% of all the capital in America was going into such investments.

Many ceos found out after the fact that this spending binge had taken place without any unified vision or plan, and in a purely fragmented manner. Further, most of the new technology (upwards of 70%, according to the same surveys) had been purchased outside the central IS group, and thus was imbedded in all facets of the business. When quizzed by the Fordham Graduate School of Business Administration, New York, 1,500 ceos shouldered the blame for this legacy of unmanaged growth, and said they would try to do something. Enter the CIO.

"It's difficult to know whether the CIOs are having to deal with gross mismanagement, or gross underutilization of technology," says Rod F. Monger, assistant dean at Fordham. "Unless there are reforms in the current corporate accounting system, any effort to manage technology is doomed to failure."

Highbarger points out that cfos are reluctant to allow capitalization of intangible assets, even though accounting regulations allow, and even encourage, this practice. "Intangibles," such as software development, consistently show up as expense items, and so are subject to every organizational whim and business change. "During takeovers and decentralization programs, for example, these nonstrategic investments usually are the first to go," Highbarger adds.

Desperately Seeking Stability

Such relentless pressure to perform in the short term usually precludes sustained executive commitment to long-term projects, killing a CIO's grand plans before they can materialize. If the ceo cannot be persuaded to invest for the long haul, the CIO's job becomes an exercise in frustration, even futility. So, faced with sporadic budgeting and an inability to see pet projects through to completion, many CIOs migrate.

Highbarger likens them to professional football coaches: "They keep moving from organization to organization in search of that winning team. And because the accounting system is the same at each company, the same old faces keep cropping up."

Michael Simmons is on that treadmill; a CIO on the move after a yearlong, and ultimately fruitless, battle with his ceo over MIS policy (see "A Rash of Top-Level Departures Erupts at IS Shops Across Nation," July 15, p. 21). Simmons, former president of the Boston-based Fidelity Investments systems arm, says his interviews at 10 large corporations have been a depressing experience, and confirm his suspicion that the nation is running out of technological gas. "All are slashing their technical research programs, and none have created advanced technology groups to monitor the timing and flow of new developments."

Such research, especially in the communications area, is inherently risky, says Monger. "Often it can take 10 years for a new piece of technology to bear fruit. But few managers have the wisdom to put the seed in the ground and let it grow undisturbed," he feels. Monger takes up the theme in a book called *Mastering Technology* (Macmillan/Free Press), due for release this month.

"Giving anything the label 'technical research' or 'long-term' is the kiss of death" in such a cost-conscious environment, says Jack Seafric, MIS director for the Dallas-based Maxus Energy Corp. Seafric's company, a spin-off of the once-proud Diamond Shamrock conglomerate (of Agent Orange fame) is in a consolidation phase. He says that by axing IBM's VM operating system, which he can live without, he can save his employer $300,000 next year, just the kind of talk his bosses like to hear. Seafric says he'll be a "hero" soon, but in three years, when he goes hat-in-hand seeking money for new long-term applications, he knows it will be a different story. "I'll probably find the bank doors shut in my face," he comments.

Like Seafric, Bob Forte, vp, MIS, for Burger King in Miami, is used to facing closed doors, but he says that if you are prepared to gamble, you can go around them from time to time. That gamble is what he calls the common practice of hiding research in the budget by labeling it something else. He says such "creative bookkeeping" is the only way IS managers can save pet projects from the ax. Forte refers to such illicit research as

Chart by Paragraphics; Illustration by Min Joe Hong

Eastman Kodak Co.'s Katherine Hudson: Clearly a CIO Model

Back in January, when Eastman Kodak Co. created its corporate information systems unit and tapped 40-year-old Katherine M. Hudson to head up the new operation, the company was also creating history. Never before in the giant manufacturing conglomerate's 107-year history had an IS director or a woman won the prestigious position of corporate vp.

The move clearly signals a recognition by Kodak of the increasing importance of IS and of Hudson herself, who has held a mélange of management and executive posts in her 18-year career at the Rochester manufacturer of photographic, information management, chemical, and health products.

As director of corporate IS at the $15.6-billion company, Hudson is responsible for half of all corporate IS spending, which represents a hefty 2% of those total revenues. On the technology side, she oversees a shop that has IBM for its business applications and Digital Equipment Corp. wares on its factory floors. On the corporate side, her clout is undeniable. Hudson reports directly to Kodak president and executive officer Kay R. Whitmore and works closely with vice chairman and executive officer J. Phillip Sampler.

DATAMATION senior editor Linda Runyan traveled up the Hudson to talk to Katherine Hudson and find out how she's shaping the new vision of information systems at Kodak.

EASTMAN KODAK'S HUDSON: "We endorse the concept of a CIO."

LINDA RUNYAN: How do you view your role as director of corporate IS in terms of the overall company and its objectives?

KATHERINE HUDSON: There are IS directors in almost every unit of Kodak and several IS management councils that embrace different functional and geographic units within the company. My role is to offer them support when they need it, technology directions, and standards such as MAP, TOP, and OSI. Line management at Kodak can make multimillion dollar investments in technology, but if approval of those investments gets moved up to high levels such as the office of the chairman, then he will call me and ask "Is this the right direction for the company to go?" It's not veto power. I'd rather look at it as a supporting role.

RUNYAN: Is your position similar to the CIO model?

HUDSON: We endorse the concept of a CIO who reports directly to the office of the chief executive, making the Corporate Information Systems unit a very highly positioned organization that's worldwide in scope. The predecessor organization was not corporate in nature and there was no corporate officer who did what CIOs are supposed to do, which is to try to maximize the company's return on its IS investment and stay at the forefront of information technology.

RUNYAN: How do those IS strategies relate to Kodak's business strategies?

HUDSON: As a company, we're striving to be an industry leader in four key segments: the consumer, photographic, and entertainment business; the information management sector; the industrial division, which is represented by our chemicals division and certain manufacturing groups; and health care. Our IS strategy is to have the decision support systems go from the customer need in the marketplace to the research scientist and development engineer, then to the factory floor, suppliers, and warehouses, and finally, the customers.

RUNYAN: What are you doing to ensure that this integrated, team approach is actually implemented at Kodak?

HUDSON: We want to make sure that our own IS people know how, if a customer wants a certain kind of system, to show that customer better alternatives, help him understand the technical differences and generate the business case to justify that decision.

RUNYAN: In the drive to integrate, has Kodak taken a thorough IS inventory throughout the corporation?

HUDSON: We've been doing it in a rather piecemeal fashion because we don't want to overburden the operating people. Before I got here, the network was studied. Now we're studying the data centers and we're just beginning to look at the actual applications on a corporate basis. On the communications side, we've decided to move toward ISDN. We'll be phasing in the development of a standard voice and data network over an 18-month period.

RUNYAN: Personnel takes the biggest bite out of the IS budget. What is Kodak doing to enrich its pool of IS talent?

HUDSON: We are setting up a human resources department within our IS operation because we see such a need to work on career development, retraining, and compensation schemes.

RUNYAN: What is the skill mix that you want to cultivate among IS personnel?

HUDSON: I hope that by the time I'm finished in this job the IS people will have actually met a real customer—a K Mart, a Bank of America—the ultimate customer, not just our own end users. Then an IS person should be perfectly capable of handling the business issues associated with information systems within the company. We haven't had that in the past.

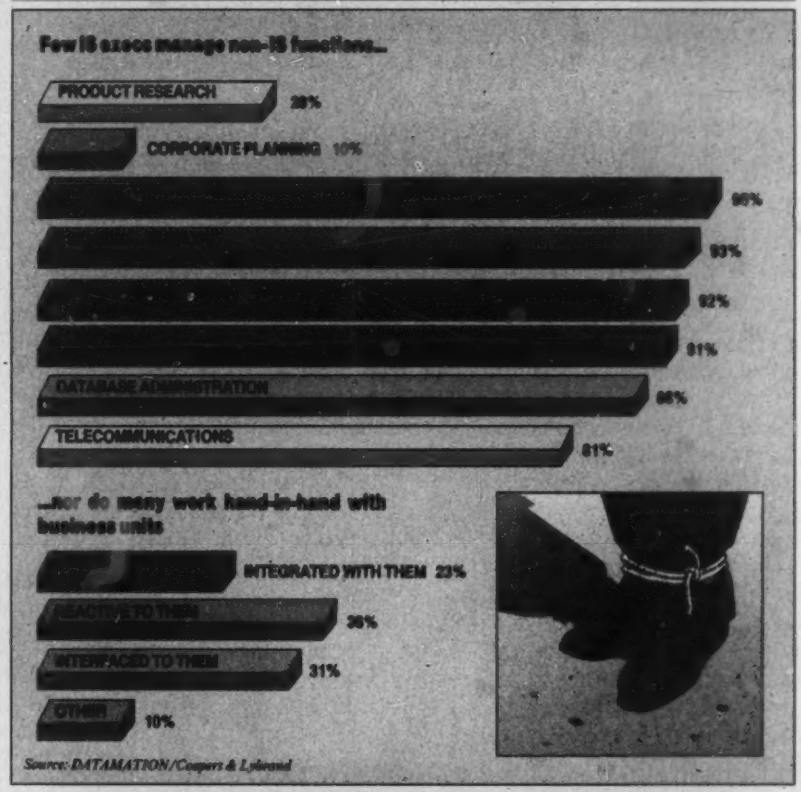
RUNYAN: In your 18-year career at Kodak you've certainly not been isolated. How would you characterize your career?

HUDSON: My career at Kodak has been very eclectic. I have been associated with almost every major division of the company except research and manufacturing, although manufacturing people reported to me when I was running the instant products unit. I have at least a five-year commitment to my current job. I have other things that I'd like to do at Kodak, but I do love my job. Last year was a great year. I turned 40, I had a baby, and I was made a corporate vp.

Photography by Phil Marr

CIO: Misfit or Misnomer?

Empire



Barriers

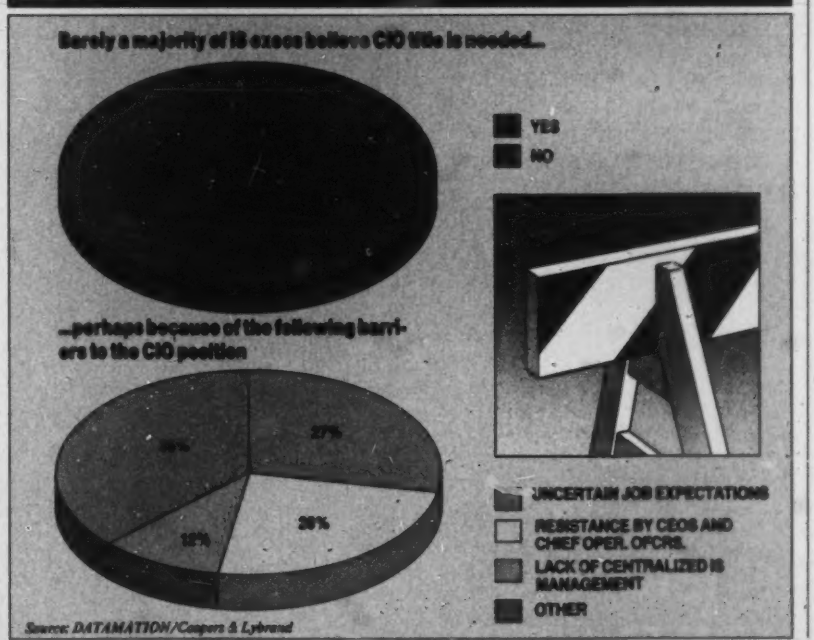

Barely a majority of IS execs believe CIO title is needed...
YES
NO
...perhaps because of the following barriers to the CIO position
27%
26%
UNCERTAIN JOB EXPECTATIONS
RESISTANCE BY CEOS AND CHIEF OPER. OFCRS.
LACK OF CENTRALIZED IS MANAGEMENT
OTHER
Source: DATAMATION/Coopers & Lybrand

Chart by Paragraphics/Illustrations by Min Jae Hong

"skunk work," because the aim is to dissuade the boss from taking too close a look at it.

Monger sees actions like those Forte describes as examples of IS professionals having "gotten creative in all the wrong ways to get what they yearn for." He says they are the victims of a myopic approach to technology management that threatens not only their profession, but the well-being of the nation.

The upshot of all this is that U.S. businesses have fallen behind those trading partners prepared to invest for the long term, such as Japan. Government figures show 1980 as the last time the U.S. high-technology sector had a trade surplus. The trade balance has sunk deeper into the red every year since.

As Monger points out, technology investment is risk investment. "No company knows what the benefits of, say, a new CIM (computer integrated manufacturing) plant will be when it's finally built. IBM took over six years to convert its Lexington, Ky., plant to robots and CIM. And each of those years the company took a hit against its bottom line for having the courage to make these investments."

Small Companies Can't Act Like IBM

Monger notes sadly that companies smaller than IBM trying to follow the computer giant's example could become takeover candidates because of the impact of such spending of their profits.

Some foreign nations recognize that the commercial sector cannot play banker to long-term technology investment. As a result, they have developed an external system of financing to deal with the problem, and discount the idea that an internal manager can reverse decades of mismanagement. "The Japanese realized that you can't expect the commercial sector to play banker to the long term given its accountability in the short term, and looked elsewhere—the government, educational, and scientific sectors—for a solution," Monger says.

In a paper for the U.S. House of Representatives task force on Space, Science, and Technology, Monger writes that we must do the same, or, better still, completely change our corporate accounting and taxation system to reflect the economic realities of technology investment.

Without such changes, he says, the first wave of CIOs will continue to see their visions wither on the vine, tackling a twenty-first century job with twentieth century tools. ■